



STATE OF UTAH
DEPARTMENT OF HEALTH

NORMAN - BAUGERTER GOVERNOR

SUZANNE DANDOLY, M.D., M.P. - EXECUTIVE DIRECTOR

December 16, 1985
533-6146

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(Return Receipt Requested)

Mr. Chris Sterry
Environmental Supervisor
Texasgulf Chemicals Co.
P. O. Box 1208
Moab, Utah 84532

DIVISION OF OIL
GAS & MINING

ACT 1019/005

Mr. Chris Sterry:

We have received and reviewed Texasgulf's "Plan for Abandonment of Class III wells and Mine shafts (Revision #1)". Comments on the plan have also been solicited from the Utah Division of Oil, Gas and Mining. This letter is to share with you the comments of both State agencies, in order that a final version of the plan be prepared prior to the submittal of a UIC reclamation bond. It is the intent of both agencies that the plan be a stand-alone document of sufficient detail, such that a third party may complete any well and shaft reclamation necessary through sole reference to the Plan. Joint agency comments are summarized as follows:

1. Though detail exists for costs and materials, a description of methods and procedures would greatly clarify the process for a reader or potential user of the Plan. Description of the following items is needed:
 - a) General description of the process of plugging and abandoning the wells and shafts, including an explanation of the role of each subcontractor and the sequence of their involvement.
 - b) Description of the method to be used in the placement of cement plugs in the wells and shafts. Said placement shall be in accordance with 40 CFR 146.10(b).
 - c) Description of placement of bentonite slurry in wells. Said placement shall be in accordance with 40 CFR 146.10(c).
 - d) Description of bridge plug installation method to be utilized.
 - e) Description of the minimum required cement plug thickness below the Honaker Trail Formation in all wells. As negotiated previously, Texasgulf will emplace a minimum of 200 feet of cement below the Honaker Trail Formation in the bore of each well to be reclaimed. In those wells where uncertainty exists as to the depth of the base of the Honaker Trail Formation (those wells not geophysically logged), a statement should be made as to how any variance will be compensated for by an adjustment in the depth at which the bridge plug is set.

KENNETH L. ALKEMA, DIRECTOR, DIVISION OF ENVIRONMENTAL HEALTH

- f) Clarification is needed on the sequence in which tubing will be pulled from the wells, and the cement plugs set.

2. Cost Errors Include:

- a) Labor rates provided on page 52 shall be modified as follows*:

1)	25 ton dump truck rental -	\$66.88/hr
	25 ton dump truck operator rate -	\$23.45/hr
	Total	<u>\$90.33/hr</u>
	(cost/hr for 3 units - 270.00/hr.)	
2.	Bulldozer and front end loader operator rate -	\$29.85/hr (each)
	(cost/hr for 2 operators = \$59.70/hr.)	
3.	Foreman rate -	\$32.85/hr

- * New cost/hr for gravel = \$577.79/hr
New cost/day for gravel = \$4,622.00/day (based on a 8 hr. day)
New cost/cubic yard for gravel = \$4.47/cy (assuming 1035 cy/day)

New costs for gravel per cubic yard should be reflected on pages 5 and 6.

- b) No estimates provided on water needs for the bentonite slurry and cement to be used to plug the wells. Calculations by this office suggest that more than one water truck will be needed. It is suggested that two water trucks be available during the well plugging operation for a minimum of 4 hours each. This increase of \$140.00/day results in a new workover rig cost per day of \$2,566.00, which should be reflected in well cost estimates on pages 2 and 36.
- c) Due to the nature of the work, contingency costs shall be calculated at a rate of 15% of the total plugging and abandonment cost.
- d) Costs for complete plugging and abandonment of Well 11 shall be provided.
- e) Recent discussions with Texasgulf have informed us of new plans for the plugging of well 7. New costs and plans should be provided.
- f) Horsepower requirements for water pumps used in the closure of Shaft #1, on page 50, are based on the assumption that solution mining brine in the shaft will have a specific gravity of 1.2. For conservative purposes a specific gravity of 1.23 should be used. This increases horsepower estimates from 375 to 410 hp for solution mining of the salt in Shaft #1. No significant change in horsepower estimates were encountered for the pumpage of Shaft #1 brine to the tails lakes. It is recommended that an extra 50 hp pump be added to the two proposed 200 hp pumps to be used to pump river water to Shaft #1. Associated costs for pump set-up and rental should be included on page 4.

- g) Fuel consumption estimates for water pumps on page 4 are provided for one 200 hp pump and one 50 hp pump, yet two of each are to be used.
- h) Cement estimates to plug the shaft #1 on page 5 are low. 32,215 sacks will be needed, costs should be adjusted accordingly.
- i) Increased cement needs for the #1 Shaft, result in increased time required for services of: cement pump and crew, workover rig and crew, and rental of drill pipe and cement bins. Costs need to be adjusted accordingly.
- j) Estimate of 2000 ft. of 2-7/8 inch drill pipe to install the cement plug in Shaft 2, on page 6, should be increased to 2,650 ft. (see page 34).
- k) Water pump operator rate on page 4 should be \$27.55/hr. vs. \$20.00/hr.

3. General Information and other needs.

- a) Weight per foot values of all casing and tubing need to be provided on the individual well schematics of wells 4, 5, 11, and 12.
- b) Information on the percent salt to be utilized in all cement plugs is needed.
- c) The type of make-up water to be used for the bentonite slurry should be stated.
- d) Density of the bentonite and cement slurries should be provided.
- e) Schematic detail of removable cover to be installed on the #2 shaft should be included.
- f) Convenience and efficiency dictate that any cementing of well annulli at the surface should be accomplished by the well cementing contractor, while working on the well.

4. Typographic errors include:

- a) Misspelling of Bentonite throughout the text.
- b) Error in diameter of 8.625 inch, 40 lb casing of well #18 (p. 26).
- c) "Miscellaneous notes for each well" - page 3.
 - 1) Well 7 - reference should be made to page 15 and Appendix F (pages 43-48).
 - 2) Well 11 - incorrect inference is drawn that this well has been properly abandoned.
- d) Wall thickness of tubings in wells 21, 22, and 23, found on page 1 should be 0.250 vs. 0.205 of an inch.
- e) Well diameter of 9.635 given under "Bridge Plug Costs" on page 38 should be 9.625.
- f) Tubing specifications given in notes on graphic of well 1; 5.5625" should be 5.625".
- g) Well 10 graphic, page 18 - casing diameters in inches need to be given.
- h) Shaft 2, page 34 - 4 ft concrete removable cover vs. 3 inch concrete removable cover.

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Chris Sterry

- i) Labor rate for 4 men at \$80/day on page 38 should read subsistence for 4 men at \$80/day.
- j) Reference to figure 2 on page 54 should be to figure 3.

Upon correction of these items and approval of the Plugging and Abandonment Plan by both this agency and the Division of Oil, Gas and Mining, the UIC Reclamation Bond form and its accompanying Standby Trust Agreement form will be submitted to Texasgulf for processing. If you have any questions contact Loren Morton of our staff.

Sincerely,



Calvin K. Sudweeks, Director
Bureau of Water Pollution Control

cc: Lowell Braxton, DOGM ✓
Pamela Grubagh-Littig, DOGM
John Baza, DOGM
Mike Strieby, EPA, Region VIII

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